

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/531,767
Confirmation No. : 2042
Applicant : Eva-Maria DUSTERHOFT et al.
Filed : April 11, 2005
Title : ENCAPSULATED FUNCTIONAL BAKERY
INGREDIENTS
Art Unit : 1794
Examiner Name : Joseph MJ HANRAHAN
Attorney Docket Number : 0470-051057

EXPERT'S DECLARATION UNDER 37 C.F.R. § 1.132

I, Udo SCHARF, Ph.D., declare and state as follows:

1. I am a citizen of Germany and reside at Im Glauer 18, D-55413 Weiler (Germany). I graduated from Technical University of Munich (Germany) in Food Chemistry (1976) and received a doctor's degree in Food Chemistry (1979) I have 30 years experience within the field of Bakery Technology, working for Hoechst, Röhm, Döhler, Boehringer and CSM.

2. I am familiar with the contents of the above-identified patent application of which I am one of the inventors. Furthermore, I have read and understood the Office Action dated August 31, 2009 and the prior art references listed therein, specifically Livermore (WO 98/32336) and Kringelum (WO 99/08553).

3. I have been asked to comment on the observations made by Livermore in relation to the use of attritional agent in the latent enzyme preparations described therein. These observations are found on page 6 line 28 till page 7, line 17. In the latter passage of Livermore it is explained that in a preferred embodiment the enzyme contained in the latent

enzyme preparation is released during or after proving by: (i) temperature-mediated release (i.e. thermal breakdown of an encapsulant); (ii) water-mediated release; or (iii) an attritional agent (e.g. an enzyme, surfactant or acidulant).

4. The term “attritional agent” is defined in Livermore as any agent (for example, a chemical moiety, an enzyme, or a particular physical condition or treatment) which breaks down a barrier between the enzyme and the dough to release the enzyme. It is stated that the attritional agent preferably is an inherent property of the dough during or after proving, such as its temperature or moisture level. Livermore additionally provides the following examples of suitable combinations of encapsulants and attritional agents:

Encapsulant	Attritional agent
Fat	Temperature differential
Starch	Water
Pectin gum	Pectinase
Other gums (guar, xanthan etc.)	Degradative enzyme

5. Thus, I conclude that Livermore teaches latent enzyme preparations in the form enzyme encapsulants that contain fat as an encapsulant. Furthermore, Livermore mentions surfactant as a potential attritional agent. However, Livermore does not provide any explanation as to the type of latent enzyme preparation in which a surfactant may be used as an attritional agent, the type of surfactant that might be used, the way it should be employed or the mode of its action.

6. It is my professional view that Livermore would not have motivated a person of ordinary skill in the art to include a surfactant as an attritional agent in a fat-based encapsulant of a latent enzyme preparation, especially not if said surfactant is a release agent as defined in claim 17 of the above referenced patent application. This view is based on the following observations:

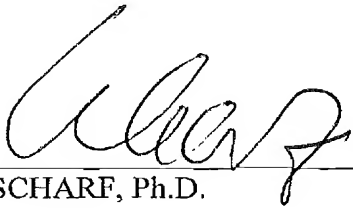
- (i) Livermore does not mention the possibility of incorporating an attritional agent into a latent enzyme preparation. Instead, the practical examples of attritional agents provided by Livermore are either a physical condition (temperature differential) or are components (water, enzymes, surfactants {≈emulsifiers}) that are normally present in the dough.

- (ii) Livermore expressly teaches that the enzyme should not be released prior to proving (see, for instance, page 2, lines 21-24 and page 6, lines 34-36). If an attritional agent (enzyme, surfactant, acidulant) is incorporated into an enzyme encapsulate, a person skilled in the art would expect release of the encapsulated enzyme to occur as soon as the encapsulate comes into contact with moisture, i.e. early on during the dough mixing stage. This is because the attritional agent is present in relatively high concentration in and around the encapsulate particles. Instead, if the attritional agent is present in the dough, its releasing action will be much less pronounced as in that case the attritional agent is homogeneously distributed throughout the dough. A person of ordinary skill in the art would expect a surfactant that is homogeneously distributed throughout a dough to exert its destabilizing effect once the fat coating starts to melt during proving or baking.
- (iii) The release agents mentioned in claim 17 of the above captioned patent application are commonly employed as emulsifiers in bread dough. In other words, bread dough more often than not contains such emulsifiers. If it is assumed that the term “surfactant” as used by Livermore encompasses the latter emulsifiers, it is my view that a person of ordinary skill trying to deduce how a surfactant might act as an attritional agent in accordance with the teachings of Livermore would reach the conclusion that emulsifiers (surfactants) as present in bread dough may act as an attritional agent. Said skilled person would not deduce from Livermore that the aforementioned emulsifiers, in order to act as an attritional agent, should be incorporated in an encapsulate as part of the encapsulant.

7. In summary, it is my view that a person of ordinary skill in the bakery art might be motivated by Livermore to employ surfactants (emulsifiers) that are commonly used in dough as attritional agents that will assist in breaking down the fat barrier between fat-encapsulated enzyme and the dough once the fat starts to melt during proving or baking. However, said skilled person would not be incited by Livermore to include such surfactants in the encapsulant of fat encapsulated enzyme as this person would expect such inclusion to cause rapid release of the enzyme early on during the dough mixing stage. Clearly, the release of enzyme activity during the dough mixing stage goes exactly against the teaching of Livermore to provide a latent enzyme system that only starts releasing the enzyme during or after proving.

8. I declare further that all statements made herein of my own knowledge are true and that these statements were made with the knowledge that willful false statements

and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application and any patent issuing thereon.



Udo SCHARF, Ph.D.

November 25th, 2009
Date